

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 08/898,853

Claims 1-19 are presently pending in the application. Claim 1-12 are allowed. Claims 13-19 stand rejected under 35 U.S.C. § 112, first paragraph. No prior art rejections remain.

With reference to the rejection of claims 13-19 under § 112, first paragraph, the Examiner contends that the claims contain subject matter which is not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time that the application was filed, had possession of the claimed invention. The Examiner cites a few examples, each of which is discussed in turn below and all of which are traversed for the following reasons.

The Examiner states that the specification does not substantially disclose a third layer on the core of the golf ball. Applicants respectfully disagree.

This issue has been discussed in prior correspondence with the Office. Specifically, see pages 3 and 4 of the Request for Interference Pursuant to 37 C.F.R. § 1.607 with U.S. Patent 5,743,816.

1) Although the present application refers to the core as including two layers 12, 13 and a cover as including two layers 15, 16, it is submitted that there is no substantial difference in layer 12c of the Ohsumi *et al.* patent, which is characterized as part of the core, and the inner cover layer 15 of the present application which is characterized as part of the cover. Both layers are the third layer counting from the inside out and, conversely, both layers are the second layers counting from the outside in. Moreover, both layers may be composed of similar materials such

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2) as an ionomer resin, as opposed to a rubber based material which is the typical composition of a core layer. Both layers may have similar compositions. Moreover, the present application provides that the core has a structure consisting of at least two layers and thus provides ample support for a core having three layers. See, page 5, lines 7-10; page 9, lines 3-6.

(but a ball w/ 2 core layers not)
Accordingly, Applicants respectfully submit that this specification clearly conveys to one of ordinary skill in the art that the Applicants had possession of the invention as defined by claims 13-19. Whether the layer 15 is referred to as part of the cover or the core in this context appears to be a matter of perspective and how one wishes to label that layer, and the Ohusmi *et al.* patent provides support in this regard.

Next, the Examiner contends there is no mention of the Shore D hardness being less than the second layer (claim 13) or the thickness (claim 15). This portion of the rejection is respectfully traversed for the following reasons.

Claim 13 recites "said inner layer is designed to have a Shore D hardness which is lower than that of said intermediate layer." This limitation refers to the inner sphere 12 which has a Shore D hardness of 20-55 degrees, especially 25-50 degrees. See, page 6, lines 30-33. Furthermore, the inner sphere 12 has a Shore D hardness lower than the Shore D hardness of layer 13. See, Examples 1-7 and Table 1. In all of the examples, the Shore D hardness of the inner sphere 12 is less than the Shore D hardness of the surrounding layer 13. Furthermore, on

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page 4 of the present application, it refers to the inner sphere being formed softer than the surrounding layer. *See*, page 4, lines 31-35.

Claim 13 also recites “said outer layer is designed to have a Shore D hardness which is lower than that of said intermediate layer.” The inner cover layer 15, as illustrated in Figure 2 of the present application, corresponds to the recited “outer layer”. The inner cover layer 15 has a Shore D hardness of up to 53 degrees, preferably up to 50 degrees. The inner cover layer has a Shore D hardness lower than the Shore D hardness of the layer 13. *See*, Examples 1-7 and Table 1, and page 7, lines 14-16 of the present application.

In each case, the recitation of the Shore D hardness of one layer being less than the Shore D hardness of another layer is plainly supported in the specification.

The Examiner has also objected to the recitation of thickness in claim 15. This portion of the rejection is not understood. Claim 15 refers to the diameters of the inner layer, the combined diameter of the intermediate layer and inner layer, and the combined diameter of the outer layer, the inner layer, and the intermediate layer. The specific recitations are clearly supported in Table 1, Examples 1-7, and in particular Example 7. They are also supported on pages 6, 7, and 9 of the present application.

Next, the Examiner has rejected claims 14 and 15 based upon the lower limits of the Shore D hardness in claim 14 and the smaller diameter in claim 15. Apparently, the Examiner has overlooked the amendments made to claims 14 and 15 in the Amendment filed on February

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29, 2000. Here, each of the claims has been amended to correct this typographical error. Claim 14 now recites the lower limit as being 20 on the Shore D hardness scale, and claim 15 has been amended to recite a diameter of 20.0 mm. Applicants note however that the claim charts in the Request for Interference also filed on February 29, 2000, did not have the updated numbers for claims 14 and 15. Therefore, a revised Request for Interference is being filed herewith to correct this obvious oversight.

Lastly, the Examiner contends that there is no mention of the specific gravities in claim 16 or the materials in claims 18. Applicants respectfully disagree.

Regarding the issue of specific gravity as recited in claim 16, Applicants respectfully submit that the present application supports claim 16 based on the express disclosure and inherent features of the compositions and diameters of the individual layers.

The subject matter for the specific gravity in Claim 16 is inherent to Examples 1-5 of the present specification. The subject matter is inherent because of the fact that the intermediate layer (or surrounding layer) is formed of a "thermoplastic resin" in Examples 1-5. The composition of the intermediate layer is disclosed at page 10, lines 2-13.

The specific gravity of both inner and intermediate layers in Examples 1-5 can be calculated as follows.

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Calculation of the specific gravity of inner and intermediate layers:

The specific gravity of the inner and intermediate layers are calculated using the stated values in Table I of the specification and from derived values. It should be noted that the terms including inner sphere, surrounding layer, inner cover layer and outer cover layer in Table 1 correspond to inner layer, intermediate layer, outer layer and cover in Claim 13 and 16, respectively.

Calculation:

(1) Stated values:

The parameters for diameter and gage (thickness) of the claimed golf ball are stated in Table I of the specification.

TABLE I

		Example 1	Example 2	Example 3	Example 4	Example 5
Inner layer	Diameter (mm)	35.30	35.30	33.90	33.50	35.30
	Shore D hardness	47	45	40	45	45
Intermediate layer	Diameter (mm)	37.90	37.90	37.90	36.10	37.90
	Shore D hardness	68	73	68	68	68
Outer layer	Gage (mm)	1.25	1.25	1.25	1.5	1.25
	Shore D hardness	40	45	40	40	35
Cover	Gage (mm)	1.15	1.15	1.15	1.80	1.15
	Shore D hardness	47	51	51	55	47
Ball	Diameter (mm)	42.70	42.70	42.70	42.70	42.70

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(2) Values Derived:

(a) Diameter and gage:

Diameter and/or gage of each layer which are not stated in Table I can be calculated by simple subtraction between the appropriate stated values in Table I. The results are in Table II below.

TABLE II

		Example 1	Example 2	Example 3	Example 4	Example 5
Inner layer	Diameter (mm)	35.30	35.30	33.90	33.50	35.30
Intermediate layer	Diameter (mm)	37.90	37.90	37.90	36.10	37.90
	Gage (mm)	1.30	1.30	2.00	1.30	1.30
Outer layer	Diameter (mm)	40.40	40.40	40.40	39.10	40.40
	Gage (mm)	1.25	1.25	1.25	1.50	1.25
Cover	Diameter (mm)	42.70	42.70	42.70	42.70	42.70
	Gage (mm)	1.15	1.15	1.15	1.80	1.15
Ball	Diameter (mm)	42.70	42.70	42.70	42.70	42.70

(b) Weight of whole ball: Set to 45.0g.

The weight of golf ball is defined to be 45.93 g or less, or 1.62 oz (or 45.93 g) or less, by JGA or USGA. *See*, page 9, lines 7-12. For this calculation, it was assumed that the weight of the golf ball was 45.0g, to obtain objective specific gravity values under the severe condition for impartialness (*i.e.*, worst case scenario).

(c) Specific gravity of the intermediate layer 13: Calculated as 0.95.

According to the specification, Hytrel 5557, Himilan 1706 or Himilan 1706 and Himilan 1605 with a ratio of 50:50 are available to form the intermediate layer 13. *See*, page 10. The

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inventors selected the combination of Himilan 1706 and Himilan 1605 with a ratio of 50:50 among these to form Examples 1-5, which is evident from the given values of Shore D hardness in Table I, because the range of Shore D hardness 68 to 73 does not account for the use of either Hytrel 5557 having a Shore D hardness of 55 or Himilan 1706 having a Shore D hardness of 60 (*See*, attached data sheet). Therefore, the range of the Shore D hardness in Table I is attributed to the combination of Himilan 1706 and Himilan 1605 with a ratio of 50:50 thereof.

According to the respective product data sheet, Himilan 1706 and Himilan 1605 has density of 950 and 940 kg/m³. Therefore, the density is considered up to 950 kg/m³ for the case. The value is converted to 0.95g/cm³ and is interpreted as specific gravity of 0.95 for the intermediate layer 13.

(d) Specific gravity of the outer layer 15: Calculated as 1.12 for Examples 1, 3 and 4, 1.15 for Example 2 and 1.16 for Example 5.

The specification discloses that Hytrel 4047, 4767, or 5612JB is used to form the outer layer 15. *See*, page 10. Hytrel 4047 was used for Examples 1, 3, and 4, and Hytrel 4767 was used for Example 2. This is evident by the values of Shore D hardness in Table I, which meet the values in the data sheet. (However, the product used to form Example 5 is unknown, since none of the material among the three Hytrel products has a Shore D hardness of 35 in Table I. The inventors believe that the hardness value of 35 is a typographical error and should be 45.

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Therefore, the highest specific gravity of 1.16 from Hytrel 5612JB among three Hytrel products is selected as specific gravity for Example 5 in the case.)

(e) Specific gravity of the cover: Calculated as 0.95

The specification says that the cover is formed of a combination of Himilan 1650 and Surlyn 8120. *See*, page 10. Since Himilan 1650 has a density of 950 kg/m^3 , which can be interpreted to be a specific gravity of 0.95 and Surlyn 8120 has a specific gravity of 0.94, therefore, 0.95 is selected as the specific gravity for the layer in the case.

3. Calculation:

Volume (cm^3) and weight (g) of each layer are calculated by using the obtained parameters in Table II. Finally, specific gravity of the inner layer is further obtained by the calculation using these values.

It is noted that the total dimple volume assumptive of about 0.4 cm^3 is not subtracted from the whole volume of the golf ball so that the specific gravity calculation is conducted under the worst case scenario.

The specific gravity as calculated for each of the layer is shown in Table III below.

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TABLE III

Layer		Example 1	Example 2	Example 3	Example 4	Example 5	Remarks
Inner layer	Diameter (mm)	35.30	35.30	33.90	33.50	35.30	G
	Volume (cm ³)	23.03	23.03	20.40	19.68	23.03	C
	Weight (g)	27.13	26.95	24.63	23.84	26.89	C
	specific gravity	1.18	1.17	1.21	1.21	1.17	C
Intermediate Layer	Diameter (mm)	37.90	37.90	37.90	36.10	37.90	G
	Whole volume (cm ³)	28.50	28.50	28.50	24.63	28.50	C
	Layer volume (cm ³)	5.47	5.47	8.10	4.95	5.47	C
	Weight (g)	5.20	5.20	7.70	4.70	5.20	C
	specific gravity	0.95	0.95	0.95	0.95	0.95	A
	Gage (mm)	1.30	1.30	2.00	1.30	1.30	C
Outer layer	Diameter (mm)	40.40	40.40	40.40	39.10	40.40	C
	Whole volume (cm ³)	34.53	34.53	34.53	31.30	34.53	C
	Layer volume (cm ³)	6.03	6.03	6.03	6.67	6.03	C
	Weight (g)	6.75	6.93	6.75	7.47	6.99	C
	specific gravity	1.12	1.15	1.12	1.12	1.16	A
	Gage (mm)	1.25	1.25	1.25	1.50	1.25	G
Cover	Diameter (mm)	42.70	42.70	42.70	42.70	42.70	C
	Whole volume (cm ³)	40.76	40.76	40.76	40.76	40.76	C
	Layer volume (cm ³)	6.23	6.23	6.23	9.46	6.23	C
	Weight (g)	5.92	5.92	5.92	8.99	5.92	C
	specific gravity	0.95	0.95	0.95	0.95	0.95	A
	Gage (mm)	1.15	1.15	1.15	1.80	1.15	G
Ball	Diameter (mm)	42.70	42.70	42.70	42.70	42.70	G
	Volume (cm ³)	40.76	40.76	40.76	40.76	40.76	C
	Weight (g)	45.0	45.0	45.0	45.0	45.0	A
	specific gravity	1.10	1.10	1.10	1.10	1.10	C

Remarks:

A: Values given by certain calculations

C: Values given by calculations using the values by certain calculations and/or values given by Table I

G: Values given by Table I in the specification

(4) Results

As shown in Table III, the specific gravity of the inner layer is always larger than the specific gravity of the intermediate layer. The intermediate layer and outer layer have specific gravities which are lower than the specific gravity of the inner layer.

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Accordingly, the foregoing calculations demonstrate that the subject matter of claim 16 is inherently, if not, expressly disclosed in the present application.

With respect to the rejection of claim 18, Applicants have amended claim 18 for clarification. Further, the Revised Request for Interference has been changed to reflect the amendments to claim 18. The present application discloses that the surrounding layer may be formed of a composition similar to the inner sphere or another resin. See, page 8, line 38 to page 9, line 3. Page 7 (lines 26-28) states that the surrounding layer 13 may be formed mainly of thermoplastic resins such as ionomer resins or rubber compositions. Specific examples include Hytrel (which is a polyester elastomer) and Himilan (an ionomer resin). See, page 10, lines 2-7. Thus, the present application clearly provides support for claim 18 as amended.

In view of the foregoing, Applicants respectfully requests reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, first paragraph.

Accordingly, Applicants respectfully submit that all of claims 1-19 are now in condition for allowance. It is requested that the Request for Interference be granted. Should any other issues remain, the Examiner is respectfully requested to contact the undersigned attorney at the local telephone exchange listed below.

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Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Robert M. Masters", written over a horizontal line.

Robert M. Masters
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APPENDIX

(VERSION WITH MARKINGS TO SHOW CHANGES MADE)

IN THE CLAIMS:

Please amend claim 18 as shown:

18. (Amended) The solid golf ball according to claim 13, wherein at least one layer of said solid core is formed by using a material comprising one selected from ionomer resins and thermoplastic resins [elastomers composed of styrene, olefin, urethane, ester, or amide].